

**Precalc Warm Up # 9-5**

1. Solve on  $[0, 2\pi)$

$$\sec 3x \csc 3x - 2\csc 3x = 0$$

## HW Questions, p. 440

In Exercises 1–6, use a double-angle formula to determine the exact values of the sine, cosine, and tangent of the given angle.

3.  $60^\circ = 2(30^\circ)$

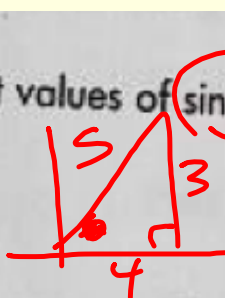
5.  $\frac{2\pi}{3} = 2\left(\frac{\pi}{3}\right)$

In Exercises 7–12, find the exact values of  $\sin 2u$ ,  $\cos 2u$ , and  $\tan 2u$ .

7.  $\sin u = \frac{3}{5}$ ,  $0 < u < \frac{\pi}{2}$

9.  $\tan u = \frac{1}{2}$ ,  $\pi < u < \frac{3\pi}{2}$

11.  $\sec u = -\frac{5}{2}$ ,  $\frac{\pi}{2} < u < \pi$



$2 \sin u \cos u$

In Exercises 51–72, verify the given identity.

51.  $\csc 2\theta = \frac{\csc \theta}{2 \cos \theta}$

$$\frac{1}{\sin 2\theta}$$

$$\frac{1}{2 \sin \theta \cos \theta}$$

$$53. \cos^2 2\alpha - \sin^2 2\alpha = \cos 4\alpha$$

$$\text{Let } u = 2\alpha$$

$$\text{use } \cos 2u = \cos^2 u - \sin^2 u$$

$$\cos 2(2\alpha);$$

$$\cos 4\alpha$$

Verify:

$$56) \cos^4 x - \sin^4 x = \cos 2x \quad 57) \cos 3B = \cos^3 B - 3\sin^2 B \cos B$$

$$\cos(B+2B)$$

$$\cos B \cos 2B - \sin B \sin 2B$$

$$\cos B (\cos^2 B - \sin^2 B) - \sin B (2 \sin B \cos B)$$

$$\cos^3 B - \cos B \sin^2 B - 2 \sin^2 B \cos B$$

↓

In Exercises 73–84, find all solutions in the interval  $[0, 2\pi)$ .

73.  $4 \sin x \cos x = 1$

74.  $\sin 2x \sin x = \cos x$

$$2 \sin x \cos x \cdot \sin x = \cos x$$

$$2 \sin^2 x \cos x - \cos x = 0$$

$$\cos x (2 \sin^2 x - 1) = 0$$

↓

$$x = \frac{\pi}{2}, \frac{3\pi}{2}$$

$$x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$$

$$75) \cos 2x = \cos x$$

$$2 \cos^2 x - 1 = \cos x$$

$$2 \cos^2 x - \cos x - 1 = 0$$

HW: p. 440 #29a, 77, 79

and Chapter Review: p. 442  
#1-13 odd, 19-23 odd

HW Week 9: Wednesday

Test PC 6:

next Thursday (group part)

Friday (Individual part)